

WHAT IS CLAIMED IS:

1. A waste collector device comprising a receptacle in which a plastics bin liner bag is placed, the device comprising:

- 5 • a storage compartment for storing a covering in the form of a sheath or sock for forming a bag and made of a plastics film, said covering being contained in a storage compartment, preferably in folded form, said compartment being situated in the top portion of said
10 receptacle, preferably inside it;
 - drive means suitable for delivering said covering from said storage compartment inside of said receptacle to form said bag, preferably down to the bottom of said receptacle;
- 15 • seal and cutter means, preferably operating by heat-sealing and hot-cutting, for sealing and cutting said covering, enabling a said bag to be made from said covering leaving said compartment, and subsequently enabling a said bag to be closed and separated from the
20 remainder of said covering once the bag has been filled with waste; and
 - said storage compartment being disposed in such a manner as to define a top central orifice of said receptacle through which waste can be introduced into
25 said bag;
 - wherein the device:
 - further comprises means for opening and closing said central orifice in the top portion of said receptacle through which it is possible to introduce
30 waste into said bag, opening of said central orifice being triggered when an article such as some waste is detected over said central orifice, and said central orifice being kept closed between two occasions on which waste is introduced, said means for opening and closing
35 said central orifice being situated above said drive means; and wherein:
 - said drive means are suitable:

• for adopting a disengaged position in which they define an opening in the top margin of the bag enabling waste to be introduced therein without coming into contact with the open two margin of said covering;
5 and

• for moving so as to pinch said plastics film covering coming from said compartment in the central region of said receptacle to enable said bag to be entrained, and where appropriate to be lowered down to
10 the bottom of said receptacle.

2. A device according to claim 1, wherein said drive means are constituted by first rollers situated in said receptacle beneath said storage compartment, which said
15 storage compartment is located against the inside periphery of said receptacle in such a manner as to define a top central orifice of said receptacle through which said waste can be introduced into a said bag, and said first rollers are suitable for moving from two
20 opposite sides of said receptacle until they pinch said plastics film covering coming from said compartment in the center region of said receptacle, and enable said bag to be driven and lowered to the bottom of said receptacle by rotating said first rollers.

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3. A device according to claim 1, wherein said first rollers are disposed in parallel, facing each other horizontally, and against or close to two opposite sides of said receptacle, and are suitable for being moved
30 mechanically in horizontal translation in a direction perpendicular to their horizontal axes from a disengaged position enabling waste to be introduced into said bag through said central open orifice without coming into contact with the top margin of said bag, to a close-
35 together position towards the center of said receptacle in which they pinch said covering and enable it to be driven, and where appropriate to be closed.

4. A device according to claim 3, wherein said seal and cutter means enable the following steps to be performed:

5 a) closing the open margin of said covering in the form of a sock coming from said storage compartment so as to make the bottom of a said bag prior to lowering it to the bottom of said receptacle;

b) closing a bag that is completely or partially filled with waste;

10 c) preferably, separating a said bag after it has been closed, by cutting said plastics film covering above the zone corresponding to the sealed closure of the top margin of said full bag;

15 d) preferably piercing part of the top margin of a said bag above said closure zone so as to constitute a handle in the full bag that is to be removed; and

20 e) closing the bottom end of the margin of the covering coming from said compartment by heat-sealing above the zone that corresponds to said separation cut mentioned in step c), or where appropriate above said handle mentioned in step d).

5. A device according to claim 4, wherein said drive means and said seal and cutter means are situated in the
25 top portion of said receptacle and are suitable for co-operating in such a manner as to be capable of sealing said plastics film so as to close a bottom of a said bag in said steps a) and e), prior to lowering said bag to the bottom of said receptacle, and where appropriate
30 after or together with said closure of the top margin of a said full bag in step b), and where appropriate after said cuts of steps c) and d).

35 6. A device according to claim 5, wherein said heat-seal and hot-cutter means are suitable for performing said steps a) to e) simultaneously, and preferably comprise two heat-seal plates placed facing each other in parallel

and suitable for moving from two opposite sides of said receptacle into the center region of said receptacle, pinching said plastics film covering between said two heat-seal and hot-cutter plates.

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7. A device according to claim 6, wherein said drive means are constituted by first rollers situated in said receptacle beneath said storage compartment, which said storage compartment is located against the inside
10 periphery of said receptacle in such a manner as to define a top central orifice of said receptacle through which said waste can be introduced into a said bag, and said first rollers are suitable for moving from two opposite sides of said receptacle until they pinch said
15 plastics film covering coming from said compartment in the center region of said receptacle, and enable said bag to be driven and lowered to the bottom of said receptacle by rotating said first rollers, and wherein said heat-seal and hot-cutter plates are placed below said first
20 drive rollers respectively, and are suitable for co-operating therewith so that when said two first drive rollers are rotated so as to enable said bag to be placed at the bottom of said receptacle, said heat-seal and hot-cutter plates are in a spaced-apart position so as to
25 allow said bag to pass through and be lowered between them.

8. A device according to claim 7, wherein said heat-seal and hot-cutter plates are disposed respectively beneath
30 said first drive rollers and are secured thereto, said first rollers being mounted in flexible manner so that when they are in a position pinching a said covering, it is still possible to move said heat-seal and hot-cutter plates against each other in the center of said
35 receptacle in order to perform said heat-sealing and said hot-cutting of said covering pinched between said two plates.

9. A device according to claim 8, including compactor means suitable for applying pressure against the film constituting the bag once it is partially or completely
5 filled with waste, said pressure being applied to the outside of the bag.

10. A device according to claim 9, wherein said compactor means comprise pivotally-mounted compactor bars situated
10 beneath said heat-seal and hot-cutter means and suitable for pivoting from a rest position in which said bars are disposed against respective opposite sides of said receptacle to a tilted position obtained by pivoting
15 about respective pivot axes situated at their bottom ends which are secured against said respective opposite sides of said receptacle until the top ends of said bars reach the center region of said receptacle.

11. A device according to claim 9, wherein said compactor means is actuated automatically using a photoelectric
20 cell or a sensor, as soon as a said bag is more than half full, and preferably after each new introduction of waste into said bag, and then when said bag is completely full, said compactor means are maintained in the compacting
25 position until after said heat-sealing and/or said hot-cutting for closing said full bag and, where appropriate, for separating it.

12. A device according to claim 8, wherein said compactor arms include flexible or semi-rigid strips tensioned
30 across rigid frames so that when said compactor strips encounter said bag filled with said incompressible waste, said compactor strips deform, thereby avoiding tearing said plastics bag, and said pivoting of said compactor
35 strip is interrupted on encountering resistance corresponding to a predetermined compacting pressure.

13. A device according to claim 1, including means for opening and closing a central orifice in the top portion of said receptacle through which waste is introduced into said bag, said opening and closing means being controlled
5 automatically by means of a photoelectric cell or a sensor so as to keep said receptacle closed between two occasions on which waste is introduced, and so as to cause said central orifice to open when an article such as waste is presented over the location corresponding to
10 said central orifice.

14. A device according to claim 13, wherein said opening and closing means comprising a moving strip wound between two second rollers disposed respectively against two
15 opposite sides of said receptacle over said storage compartment, with movement of said strip being obtained by rotating said second rollers, said moving strip including an opening, preferably of substantially the same shape as said central orifice, so that when said
20 opening coincides with said central orifice said receptacle is in an open position allowing waste to be introduced, and when a solid portion of said strip completely covers said top central orifice, said receptacle is in a closed position, thereby confining
25 said waste inside said receptacle.

15. A device according to claim 1, wherein said bag is put into place at the bottom of said receptacle inside a box, said box being secured to at least a bottom portion
30 of one of the sides of said receptacle, and said box resting on slider means enabling a said bag to be removed by pulling said bottom portion of the side of the receptacle that is secured to said box.

35 16. A device according to claim 1, the device being fitted with electronic means enabling the various steps listed below to be controlled and synchronized as a

function of information received from said photoelectric cells or sensors:

- 1) closing and opening said central orifice;
- 2) driving said plastics film covering for forming
5 the bag so as to put into place at the bottom of said receptacle;
- 3) performing said compacting steps using said compactor means;
- 4) performing said sealing and cutting steps using
10 said seal and cutter means; and
- 5) interrupting the above steps in the event of a bag being removed out from said receptacle.

17. A method of collecting waste with a device according
15 to claim 1.

18. A method according to claim 17, wherein the following steps are performed in succession:

- 1) sealing and cutting said covering to form the
20 bottom of a said bag using said seal and cutter means;
- 2) driving said bag inside said receptacle, preferably to the bottom of said receptacle; using said drive means;
- 3) putting said drive means in a disengagement
25 position in which they define an opening at the top margin of the bag, enabling waste to be introduced therein;
- 4) opening said central orifice using said closing and opening means whenever waste is detected above said
30 central orifice;
- 5) inserting said waste through said open central orifice, said waste being collected in the bottom of a said bag;
- 6) closing said central orifice using said means for
35 closing and opening central orifice immediately after said waste has been introduced through said central orifice opened in step 2);

7) where appropriate, compacting said bag using said compactor means;

8) sealing and cutting the top margin of said bag once full of waste using said seal and cutter means; and

5 9) where appropriate, removing said bag from said receptacle.